

REMARKS

I. Status of the Claims

Claims 1-17 are pending in this application, of which Claims 1 and 7 are in independent form. All of the claims stand finally rejected over prior art. Applicants respectfully request reconsideration based on these remarks and in light of the Declaration of David F. Erb, Jr. submitted herewith.

II. Applicants Interview Summary

Applicants thank Examiner Salvatore and Supervisory Examiner Morris for the courtesy extended in a personal interview conducted on December 13, 2005.

At the interview, applicants exhibited samples of ballistic materials according to the invention as well as samples according to the prior art.

An example of a “nonwoven batting layer” was shown, and it believed that the scope of this claim term, as would be understood to one of ordinary skill in the art, has been satisfactorily resolved.

Although several issues were discussed, the interview focused mainly on the rejection of the independent claims over U.S. Patent No. 5,660,913 (“Coppage”) in view of Published U.S. Application No. 2003/00222583 A1 (“Thomas”), and specifically the motivation to combine the references.

Applicants argued that, far from being obvious, it would not have been possible to practice the combination as suggested in the Office Action. In general, these arguments were well received by the Examiners. It was agreed that David F. Erb, Jr., present at the interview, and one of the inventors on the application, would submit a

Declaration describing factual aspects of the references, and the purported combination. It was agreed that applicants would provide more complete arguments as to why the suggested combination would not have been obvious, which arguments are set forth below.

III. The Claimed Subject Matter

In the present invention, (1) a nonwoven batting layer is entangled with (2) a woven layer (which may be unidirectional or quasi-unidirectional (cross-laid) fabric). Entangling is perpendicular to the xy plane of the woven fabric, so that the fibers of the nonwoven layer are incorporated into the woven fabric.

Introducing fibers into the interstices of the woven, unidirectional or quasi-unidirectional material by needlepunching increases the interlaminar shear strength as well as the communication between layers, thus providing better absorption and distribution of energy during a ballistic event. See para. [0028] of the published application. Manufacture and joining of the separate layers by needlepunching also permits forming of lower weight, more flexible, and more comfortable ballistic garments, simplifying manufacture of end products by eliminating the need to assemble individual layers. See para. [0031] of the published application.

IV. Rejections Over Prior Art Under 35 U.S.C. § 103(a)

Claims 1, 2, 4-10, 13 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,660,913 (“Coppage”) in view of Published U.S. Application No. 2003/00222583 A1 (“Thomas”); Claims 3, 11, 12 and 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Coppage in view of Thomas, and further in view of U.S. Patent 6,266,819 (“Bachner”); and Claims 14 and 15 were rejected

under 35 U.S.C. § 103(a) as being unpatentable over Coppage in view of Thomas, and further in view of U.S. Patent No. 5,440,965 (“Cordova”).

The Office Action relies on Coppage purportedly to show a ballistic material comprised of a nonwoven layer stacked with a woven layer. The Office Action relies on Thomas to teach that it was known in the art to consolidate layers of a ballistic material by needlepunching. The Office Action concludes that, taken together, Coppage and Thomas render obvious a multilayered ballistic material comprising nonwoven batting entangled into layer(s) of woven material by needlepunching.

Applicants do not concede the correctness of the characterization of the prior art, but focus herein on the motivation to combine the references.

V. Argument

Specifically, as noted in Coppage, the inner and outer nonwoven layers are resin impregnated (see column 3, 20-23; column 5, lines 65-66). The result is not a nonwoven batting layer but a resinated ply. The middle woven layer is composed of individual sublayers that are not quilted or otherwise joined to each other (Column 3, 47-51). As set forth in the attached Declaration of David F. Erb, Jr., it would not have been obvious (or even possible) to entangle the resinated plies with the woven layers using needlepunching because the needling barbs would certainly become fouled or break in the process.

Moreover, Thomas teaches needlepunching to make a ballistic fabric, but does not disclose the use of woven, quasiunidirectional, cross-laid, or unidirectional fabrics in combination with the needlepunched material. Thus, there is no motivation in Thomas to form a consolidated fabric from a woven layer(s) and nonwoven batting. Likewise,

while Coppage does not exclude the possibility the plurality of sub-pplies of woven material may be “tacked together at various locations” (see column 3, lines 47 to 55), that does not constitute motivation to consolidate a nonwoven batting layer with subplies of woven materials. Thus, the motivation is lacking in the references to make the claimed combination.

Taking the combination from yet another viewpoint (as suggested by the Examiners in the December 13, 2005 interview) it further would not have been obvious (or even possible) to needlepunch the nonwoven and woven layers of Coppage as an intermediate step in forming the composite structure, followed by resin impregnation. Coppage relies on having resin impregnated layers for ballistic performance. As set forth in the attached Declaration of David F. Erb, Jr., it would not be possible to impregnate only the nonwoven layer after it was combined with a woven layer by needpunching. The step of impregnating with resin would result in resin contacting the woven layers, with the corresponding loss of flexibility and wearability, which are the advantages vaunted in the Coppage reference at column 6, lines 6 to 8.

The merits of the secondary references, Bachner and Cordova, have been addressed on the record. In summary, none of these references, alone or in combination provide the motivation that would have made it obvious (or even possible) to arrive at the claimed combination from the starting point of Coppage in view of Thomas.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of

the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

This Amendment After Final Action is believed clearly to place this application in condition for allowance and, therefore, its entry is believed proper under 37 C.F.R. § 1.116. Accordingly, entry of this Amendment, as an earnest effort to advance prosecution and reduce the number of issues, is respectfully requested. Should the Examiner believe that issues remain outstanding, it is respectfully requested that the Examiner contact Applicant's undersigned attorney in an effort to resolve such issues and advance the case to issue.

In view of the foregoing it is believed that all of the claims, as amended, are allowable over the prior art of record, and a Notice of Allowance is respectfully requested.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Brendan Mee", written over a horizontal line.

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